JRAI Journal of the Royal Anthropological Institute

Tracking selves or tracking relationships? Means of measuring time amongst Ethiopian runners

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GPS watches and digital self-tracking devices (DSTDs) have been characterized as 'self-tracking' devices, assuming a dyadic relationship between individuals and technologies. Amongst Ethiopian professional runners, such devices have become increasingly sought after, and yet they are embedded in deeper relationships of collaborative work, submission, and authority. They circulate between people, tracking relationships as much as they track selves. I place their use in the context of the discourses and practices of two of the main corporations working with runners in Ethiopia to suggest that the logic of exponential acceleration upon which these corporations rely is contested by Ethiopian runners, who attempt to achieve a synthesis between external scientific knowledge and pre-existing ideas about energy, risk, and collective work. Whilst DSTDs may offer a tantalizing opportunity to give in to individualistic urges, in fact they crystallize existing tensions in Amhara society between centrifugal desire and duties of care and reciprocity.

It is rainy season, and whilst the bus has been parked in a clearing of the Entoto forest for ten minutes, no one makes a move to get out. It is raining lightly and, at ten past six in the morning, only just beginning to get light. Coach Meseret, wearing a thick sky-blue Adidas rain jacket, turns in his seat to explain the day's training. He reaches into his pocket, takes the Garmin watch that the group's European manager gave him on his last visit, and presses the button to activate the GPS. 'I want you all to run for an hour and twenty minutes', he says. 'The men should cover between 17 and 18 kilometres and the women between 14 and 15. I will give the watch to Bogale today'. Bogale, who sits in front of me with his head bowed and his hood up, looks up at this and rubs his eyes before wiping the condensation from the window with his sleeve and peering out into the mist. He would have to lead the run through the forest this morning. 'I will check the kilometres at the end', Meseret adds as we reluctantly disembark.

As is usual on a morning like this, it is difficult to pinpoint exactly when the run could be said to have started. We jog slowly into the trees in groups of two or three, and most of us stop for a pre-run bowel movement amongst the eucalyptus, some continuing

Journal of the Royal Anthropological Institute (N.S.) **27**, *653-671*

their conversations in the meantime. Ablutions complete, we start again to jog slowly through the trees, looping back on ourselves every minute or so in order not to stray too far from the group. Once everyone has emerged from the bushes, a line forms with Bogale at its head, and I assume that it is at this point that he starts the watch. We wind our way in gradual zig-zags across the camber of the mountain, and Bogale often turns a hairpin around a tree to go back on himself completely. We are soon soaked from the rainwater dripping from the eucalyptus leaves, but we are running extremely slowly. Even at 3,000 metres above sea level, I am barely breathing heavily. Bogale leads us down into a thickly forested hollow where two hyenas suddenly scatter up the bank to our left to whoops of excitement from the other runners, who quickly scoop up stones just in case the animals turn on them.

After thirty minutes or so of this careful meandering through the trees, one of the other runners – realizing that we have no hope of covering 17 kilometres at this pace – shouts to Bogale that he is going too slowly. 'We should find ground where the kilometres come more easily', he says. Bogale ignores this, saying, 'This is forest training, we have to go up and down'. We continue at our leisurely pace, and I enjoy the feeling of being an easy part of the group, comfortable in mid-pack, concentrating only on 'following the feet' of Fasil in front of me, as I have been taught. When we return to the clearing after an hour and twenty minutes, Bogale hands the watch back to coach Meseret, saying, 'There was a problem with the watch, we have no kilometres today'. My own watch shows that we have covered less than 15 kilometres in the time, meaning we have run more slowly than the female group led by Teklemariam, whose salary as pace-maker depends upon his reliable use of his watch.

Later in the day, I meet up with Mesgebe, a young runner whom I had met whilst running in the forest near Lideta Mariam church at the beginning of my fieldwork. He was extremely lean last time I saw him and he appears to have lost weight. He looks exhausted as he leans over the table in the café, sipping a 'fasting macchiato' made without milk in recognition that today is a fasting day according to the Orthodox calendar. He explains to me that he has decided to reduce his training from twice to once a day. 'I was burning myself running fast in the morning and the night time', he says, 'so in that way I couldn't conserve anything and I couldn't catch up'. He has been trying to improve enough to join a 'first division' club and receive a salary like many of the members of the professional group of athletes represented by Moyo Sports with whom I ran in the morning. Having spoken about the difficulty of 'replacing what you have lost' through training – especially when he is often compelled to work as a gardener or guard to make ends meet – he comments as follows about the ability of the 'top runners' to control their energy expenditure.

> For example, you may have a watch that can calculate how many calories you burn in a day, in the morning in addition to the night. So you can sum up what you need. And it will quickly replace what you lose so that it will be nice . . . For people like me, we have to wait, just wait until the result. After that, things will be open.

Mesgebe had a somewhat hazy idea of what forms of energy were available to the top athletes – he also explained to me that they could replace calories 'using an injection' – but the above quote nevertheless illustrates the importance attached to such devices. At the beginning of my fieldwork, only one runner – Teklemariam, the pace-maker mentioned above – had a GPS watch. In a short period, however, the devices went from being extremely rare to being highly desirable, and by the time I left Ethiopia, six or

seven athletes in the group owned a watch and the coach had two which were used collectively. When Mesgebe invokes the time 'after the result', he implies that the prize money he would win would allow him to afford a watch, but also better food and to not have to work. Things would be 'open' then – that is, less opaque – and he would be able to rely on better information to control and monitor his training and energy use.

Devices like the GPS watch described above were understood to track energy expenditure, which was important both for measuring performance and for thinking about shared responsibility. Discourses of acceleration are met with scepticism and anxiety in Ethiopia because of very real concerns about energy levels and fatigue. Runners aimed to cultivate the 'condition' needed to perform at the highest level of international athletics, a delicate state of health and fitness which demanded pushing the limits of their energetic capacities without 'burning themselves', as Mesgebe described it above. Walking this tightrope between 'condition' and burnout was considered a collective endeavour, and this meant that 'self-tracking' devices entered into relationships in ways different to those envisaged by those who manufacture and market them.

This article is based on fifteen months of fieldwork which was conducted primarily in Addis Ababa, but which also involved travelling to rural training camps in the Ethiopian highlands and accompanying runners to races in China, Istanbul, and the United Kingdom. It involved living and training with a group of runners represented by Moyo Sports, an athlete management agency based in the United Kingdom which co-ordinated the athletes' training, negotiated with races on their behalf, and arranged visas and travel arrangements for international competition. The group consisted of around thirty runners who were primarily Amhara and Orthodox Christian. All came from rural areas outside of Addis Ababa and saw running as a means of 'changing their life' that involved hard work in the present for potential future success.

A typical training week would see us covering around 180-200 kilometres, and three times a week we would be picked up at 5 a.m. by the bus hired by Moyo Sports to travel to various places around Addis Adaba in order to access the particular environmental resources deemed beneficial for our 'condition'. My argument emerges from a methodological commitment to the same rigorous training regime as the runners I lived with. The puzzles that drive my inquiry emerge from my own immersion in their rhythms of training, eating, and recuperation, and in no small part from my own experience of exhaustion and attempts to maintain my own energy levels at a reasonable level. The conclusions I draw are arrived at by running alongside people, 'sharing the pace', and discussing how we felt day in day out.

Professional long-distance running is both 'neoliberal' and 'millennial': deeply individualizing, wrought with insecurity and personal risk, and underpinned by speculation and casino capitalism. Elite-level professional running, in which athletes train in groups but compete alone, is an especially powerful site from which to explore the dynamics of communal work and individual responsibilization. In this article, I argue that whilst the majority of the existing literature on digital self-tracking devices (DSTDs) characterizes them as 'technologies of the self' (Lupton 2016), as disciplinary technologies by which we learn to self-surveil at a biological level, with titles such as 'Foucault's Fitbit' (Whitson 2014), in Ethiopia, these devices circulate between people, tracking relationships as much as they track selves. As the opening vignettes demonstrate, they are caught up in ethical relationships that go beyond that between

self and device and extend to how runners relate to each other, their coaches, and their environment.

DSTDs crystallize existing tensions in Amhara society between centrifugal desire, on the one hand, and attempts to resist it through communal work and commensality, on the other, tensions which are exacerbated by an increasingly competitive athletic environment fuelled by the marketing strategies of companies such as Nike and Garmin. Devices like the GPS watch are designed with certain expectations of commensuration and of totally decontextualized quantification. This goes against runners' needs and experience, which involve sharing, slowing down, engaging with different environments in particular ways, and a particular concern with the management of energy and the temporality of development. I begin this article by describing how corporations involved in the sport in Ethiopia frame acceleration and quantification, before going on to explain how runners themselves engage with these ideas and the digital devices that accompany them.

Time, acceleration, and value

> I tell the athletes I work with, when they're going to sign a contract, the transparency is: the time and the potential is what you're worth.
>
> Jeroen Deen, massage therapist, Addis Ababa

For companies and managers involved with the sport in Ethiopia, the statement quoted above seems to be true. In spite of the fact that the athletes I knew spoke at length about particular race locations where 'the time comes' and others where it is not possible to run quickly, and of different kinds of races, those who dealt with athlete contracts did so according to a process of commensuration (Espeland & Stevens 1998), where the time an athlete had run was the only important consideration. This logic is similar to that created by the algorithms that process the data from DSTDs into numbers of steps or kilometres, intended, as Meneley puts it, to be 'capturable, knowable, commensurable, quantified' (2019: 132), and necessitating a flattening of the experience of training into data. When Jeroen mentions the 'potential', he refers to the preference of brands and managers for working with younger athletes, those who have the assumed ability to accelerate over time.

In most races, there is explicit financial value attached to times run, which are decided by race organizers and sponsors. The paradox is that East African runners are expected to understand that time is money – that the times they run will be directly rewarded financially – and yet they are also expected not to display any concern with time when they are competing. On one occasion during my fieldwork, a young athlete I knew well travelled to the Marseille-Cassis 20-kilometre race with a printed breakdown of the prize money on offer. He knew that he would receive a bonus of €2,000 if he ran under 58 minutes and 45 seconds, and had therefore calculated the pace he had to run for each kilometre to do so. He was criticized in the commentary of the race for continually checking his watch in the closing stages, and for pausing to stop his watch as he crossed the line. In fact, displaying this outward preoccupation with time, rather than throwing up one's arms in customary celebration, is something for which brands have been known to withhold the bonuses they pay for running particular times (especially if the brand's logo on a vest is obscured by a runner stopping their watch).

The acceleration of careers was explicitly written into the contracts that brands like Nike had with athletes, affecting embodied practice in concrete ways. Whilst a

traditional distance running career would see an athlete progressing gradually from shorter distances to the marathon, Nike's contracts have specific bonuses written into them to encourage athletes to move to the marathon distance, and explicit financial incentives to run fast times within the calendar year for which they are under contract. They therefore encourage acceleration in the times that runners produce and also the shortening and intensifying of careers, encouraging young athletes to move to the marathon far earlier than they would have done in the past.

Over the past six years, the most high-profile development in long-distance running has been the focus on the two-hour 'barrier' in the marathon, with several different projects aiming to use scientific innovation to make this possible. On 12 October 2019, Eliud Kipchoge of Kenya succeeded in running the marathon distance in 1.59.40 in an event sponsored by the multinational chemical company Ineos and supported by Nike (Ineos 2019). The run took place on a loop in Vienna that was re-paved specifically for the event, and Kipchoge ran in a specially developed pair of Nike shoes featuring a carbon fibre plate. This attempt, and the Breaking2 attempt that preceded it, was clearly driven by the profit orientation of Nike. The effects of the explicit focus on acceleration and the mastery of time do not circulate purely at the level of advertising discourse in the Global North, however. The slogans associated with such projects, such as 'Go Hard or Go Home' (Nike 2017), were circulated between runners on Facebook and WhatsApp, and repeated at training sessions.

These projects, and the explicit focus on exponential acceleration that they embody, exacerbate the pressures on bodies and the need to monitor energy levels that I will go on to discuss in relation to DSTDs in the second half of this article. As Krohn-Hansen points out, 'capitalism and speed are virtually synonymous terms' (2018: 193), and for Nike and Garmin to have marketing strategies based upon acceleration and the mastery of time should therefore come as no surprise. The advertising slogans of both Nike ('Better Every Day') and Garmin ('Beat Yesterday') are exemplary of this connection between capitalism and exponential speed, improvement, and acceleration.

Bear has argued that modern time, is, in fact, rife with doubt. 'We no longer have to ask questions only about temporality or relative sense of time or about abstract versus experienced time', she writes. 'Instead we can map a complex field of representations, technologies and social disciplines of time' (2014: 13). Adopting Gell's (1992) concept of 'time-maps', she argues that 'we are able to ask questions about the hierarchical ordering of time-maps within society', as well as 'diversity and clashes' amongst these representations.

Through mapping the ways in which corporations (Nike and Garmin) portray time alongside the various ways in which GPS technology, social relationships, and concerns about energy shape views of both speed and slowness, I describe the 'heterochronies' that animate Ethiopian running. As I show, devices for measuring runners' bodies are implicated in wider relationships of sharing, control, and submission than current, critical studies of *self*-tracking technologies and the 'quantified self' acknowledge. Rooting my analysis in the lived experience of runners themselves, I show how the accelerated, individualizing, self-actualizing conception of time reproduced by athletic corporations rubs up against conceptions of time that are shaped by different ideas of shared or collective endeavour. In so doing, I set out to contribute an ethnographically informed understanding of the hierarchical nature of time-maps and representations, and the concrete effects some representations (like Nike's attempt to 'accelerate' time) can have on individuals and groups of people.

Ideas about 'high-speed' or 'acceleration' society, and the connection between 'the cult of speed [as] the propaganda of progress' (Virilio 2012: 38), abound, but I follow Wajcman when she writes that the concept of exponential speed 'remains vague and elusive', as do our attempts to disentangle 'the mutual shaping or coevolution of new technologies and temporal rhythms' (2015: 6). The fascination with breaking the two-hour 'barrier' in the marathon – and the speeding up of marathon running generally which accompanies it – offers a particularly interesting opportunity to examine acceleration and capitalism and the effects of this acceleration on the bodies and energy levels of those trying to achieve it.

I therefore want to discuss the project that was ongoing at the time of my fieldwork – Nike's Breaking2 project – in some detail. In the event, held at the Formula 1 racetrack in Monza in May 2017, runners followed a Tesla car which projected a line onto the road showing them where they needed to be in order to stay on pace for a two-hour marathon. The car had a giant clock mounted on the top with the time displayed in red numbers. The mastery of time was the explicit focus of the event, yet when the Eritrean runner Zersennay Tadesse started his watch as the race began, this gesture was met with laughter from the commentary team. 'I found it interesting that Zersennay started his watch at the start', one commentator said. 'He didn't trust the very sophisticated timing we have here'. Nike, it was implied, possessed sophisticated knowledge about time that Tadesse couldn't be expected to match. Athletic 'performance' means more than just producing elite times and results; it also means playing the athlete the brand wants you to be.

The Breaking2 project was described as 'an innovation moonshot to deliver the first two-hour marathon' (Nike 2017) and as primarily a test of Nike's scientific expertise. The world record for the marathon stood at 2.02.57 when they launched their project, meaning they were aiming at a huge improvement of almost three minutes. 'To make it happen', Nike's press release read, they 'assembled a diverse team of world-class innovators who are bringing this bold vision to life'. At the beginning of the commentary to the event, Paula Radcliffe, the women's world record holder for the marathon, clad from head to toe in Nike apparel, made the following comment:

> In terms of breaking through that two-hour barrier, I think if you project … with the projections that we're going with it's definitely possible at some point. But can we accelerate it with the input of science and technology to advance history by something like seventy years?

The corporation selected their three most promising athletes for the event, based on past performances and physiological testing: Eliud Kipchoge of Kenya, Zersennay Tadesse of Eritrea, and Lelisa Desisa of Ethiopia. On the day, Kipchoge ran an incredible 2.00.25, two and a half minutes inside the previous world record. Desisa – with the same equipment and elaborate preparations – finished some fourteen minutes behind, and yet the focus of the commentary was not on Kipchoge's transcendent skill, but rather on Nike's mastery of technology. 'What Nike have done', commentator Sam Masakela declared, 'is to say, "I will take your belief, and I will plug in science, and help you get to the place where that belief can be actuated"'. One break in the footage featured an interview with Dr Phil Skiba, described as an 'MD Performance Engineer'. 'My goal,' he said, 'is to tell them something they don't know. "What do I really have under the hood?"' However, the scientists also admitted that it was 'difficult to predict' how Kipchoge would run, because his visit to the lab for testing had been his first time on a treadmill and he had 'looked extremely uncomfortable' (Hutchinson 2017).

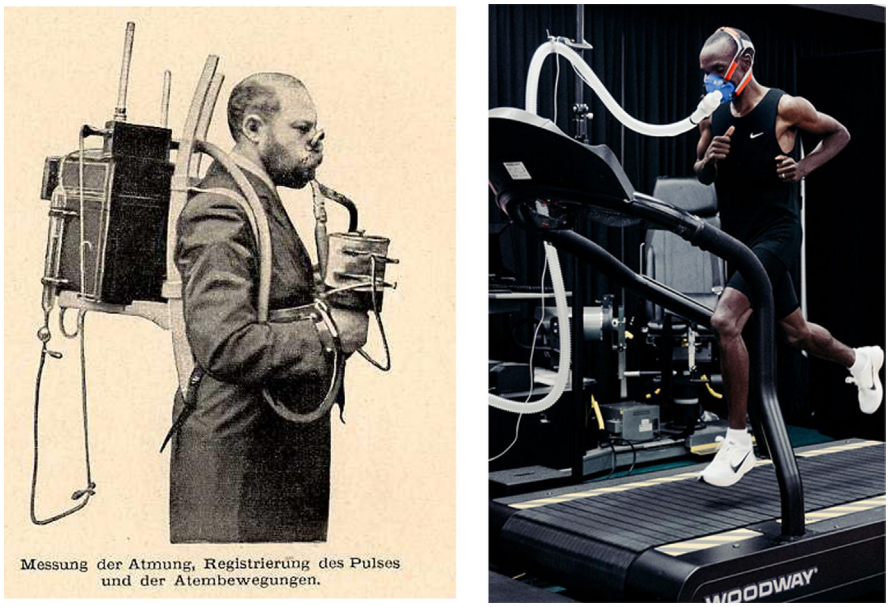

Figure 1. Left: Apparatus designed for the 'science of work'. (Photo: Jules Amar. Reproduced with permission.) Right: Eliud Kipchoge undergoing treadmill testing. (Photo: Clayton Cotterell. Reproduced with permission.)

When Nike's scientists claim that their testing works to 'show [runners] what they really have under the hood' (Nike 2017), they are engaging in a process of decontextualizing and quantifying athletes' relationship with time and their own bodies. The scientists interviewed as part of the coverage of Breaking2 do this repeatedly in terms of the metaphor of the car. 'How economical are they?' Brad Wilkins, the Director of Scientific Strategy, asks in the Nike video, adding, 'You can think of that in terms of your gas mileage. It's how much energy are you expending to go at a certain speed?' An athlete's maximal oxygen intake is described as 'how big their engine is'. This is a characterization that is often used in sport, especially with regard to boxing (Hopkinson 2015; Wacquant 1995; 2006), and yet it was a comparison that was never made by the runners I knew. In fact when coach Meseret warned about the dangers of overtraining, he did so by warning the runners that 'there is no garage for human beings'.

The means of measuring bodies in the lab used by Nike measure the capacities of individual bodies, and it is instructive to trace the development of such devices. In Figure 1, the image on the left is from Rabinbach's (1992) study of the 'science of work' in the nineteenth century, *The human motor*. On the right, Eliud Kipchoge undergoes testing at Nike Headquarters in Oregon. Rabinbach traces the history of the idea of the human motor to a period of great anxiety about fatigue and unsustainable energy usage among industrial workers. The 'science of work' arose out of the 'compelling assumption' that 'the body was a motor, and that scientific objectivity and expertise were sufficient to provide an objective solution to the worker question' (1992: 10). Scientists like Étienne-Jules Marey who were concerned with the 'human motor' applied themselves to the problem of how energy could best be calculated for *long-term* use rather than productivity per se. Energy conservation became, for Marey, Hermann von

Helmholtz, and others, a social doctrine. Productivism and reform were to be united through the 'law of the least effort' as fatigue, overwork, and excessive motion were eliminated.

For many of the scientists concerned with the 'human motor', the goal was to diminish the fatigue of the worker *without damaging output*, to contest a drive led by Frederick Winslow Taylor for efficiencies that increased speed and efficiency at any cost. Runners were caught up in this 'politics of fatigue' (Scheffler 2015) in experiments at the Harvard Fatigue Laboratory in the early twentieth century. Through using seven-time Boston marathon champion Clarence de Mar as their research subject, scientists were able to argue paradoxically against the idea of physiological fatigue in the workplace through the 'fashioning of an athletic body in stable chemical equilibrium that could be substituted for a worker's body with a finite reserve of energy in fatigue studies' (Scheffler 2015: 393). The marketing slogan for Eliud Kipchoge's eventually successful two-hour marathon was '#NoHumanIsLimited', which essentially sums up the position of those industrialists who sought to deny the existence of fatigue and physiological limits a century earlier.

Nike's scientists continually invoke the metaphor of the human motor, and yet their testing, and the accompanying imagery, like the photograph of Kipchoge above, are misleading. The testing all took place *after* the decision to aim for a two-hour marathon. It is in a sense irrelevant to the event itself, which was always going to consist of Kipchoge, Desisa, and Tadesse running at two-hour marathon pace for as long as they possibly could. What the testing does, however, is to reinforce the idea that the expertise lies with the scientists and the truth lies in the numbers. As one of the commentators put it during the coverage, as the camera panned up from Kipchoge to a cyclist behind him holding a stopwatch, 'As you can see in that shot over the shoulder of Kipchoge, the scientists on the bike, communicating, looking at stopwatches. The science is really the key to this possibility' (Nike 2017).

In *The productive body*, Guéry and Deleule (2014) argue that capitalism creates the 'productive body' by collapsing the tripartite relationship between the biological, social, and productive into a stark binary that excludes the social. This elimination of the 'social body' enforces a division between knowledge (*caput*, or head) and the labour necessary for its operation (the body) through the intervention of a 'mediator', a being outside the workers who directs and organizes knowledge on their behalf. This is precisely how the scientists involved in the Breaking2 project are presented, as 'mediators' providing an external 'input' that will make the difference between breaking two hours or not, and therefore as the source of surplus value. The productive body becomes 'normed by statistical and enumerated surveillance as systemic knowledge is separated or split from the individual labourer' (Guéry & Deleule 2014: 29). The runner's own watch, and their own embodied sense of time and rhythm, are rendered obsolete by the more 'sophisticated' technology provided by Nike. As I will go on to show in the second half of this article, runners in Ethiopia saw running expertise as tied inextricably to particular social relationships and environments, and their relationship to timing technologies was approached collectively and selectively.

Whilst the drive for the two-hour marathon came from the market, and could be interpreted as operating primarily on the level of advertising discourse, the drive for exponential acceleration that it implied nevertheless altered economies of energy in Ethiopia in concrete ways. I had many conversations with coaches and athletes about the implications of this fixation on the two-hour marathon. Meseret's main concern was

that it was 'pulling' youngsters with 'fresh RBC [red blood cells], fresh commitment, fresh mentality', towards the marathon too young, an acceleration of their career that was seen as extremely risky at a physiological level. Race opportunities were now 'weekly, weekly, weekly', leading to athletes racing more often and thereby accelerating their careers and wearing out their bodies. Meseret perceived this as a very real threat to the health and livelihoods of the athletes he coached, whose 'development' depended upon patience and gradual improvement over many years.

Energetic subjectivities, DSTDs, and means of measuring

Schüll (2016*b*) writes that the wearable tech industry relies upon the 'double insecurity' identified in Dumit's book *Drugs for life* of 'always being at risk' and 'never knowing enough about what one could and should be doing' (2012: 1). She contends that the industry depends upon customers who are 'unsure whether to trust their own senses, desires and intuitions as they make choices – when and what to eat and drink, when and how much to eat or rest' (2016*a*: 201). These are concerns that dominate the day-to-day lives of runners in Ethiopia, who operated within what I have elsewhere referred to as an 'economy of limited energy' (Crawley 2018). Professional runners understood these small decisions, made every hour of the day, to determine their capacity to 'change their lives' through the sport of running. Schüll adds that 'denizens of so-called risk society are expected to shape their lives through choice in the manner of savvy, vigilant entrepreneurs – and yet, more often than not, they lack the knowledge, foresight or resources to navigate the abundance of potential choices they face' (2016*a*: 201). Wearable tracking devices, in this reading, frees the subject from the burden of constant vigilance about these things. For runners living and working within the 'intense temporality' (Stein 2017: 42) of competitive distance running, for whom the temporal aspects of life were vitally important, these devices could be a source of anxiety as well as reassurance.

Lupton writes that self-tracking is tied into the 'political context of the *developed world*' (2016: 102, my emphasis), characterized by neoliberalism, self-responsibilization, and the construction of a fundamentally competitive sense of self as a set of achievements (Gershon 2011), as well as by an assumption of widespread individual access to consumer electronics. Hoy claims that 'personal activity trackers are an inexpensive and easy way for people to record their physical activity and simple biometric data' (2016: 94). For runners in Ethiopia, however, the cheapest GPS watch cost the equivalent of three months' salary for a first division athlete. That the demand for them nevertheless grew markedly in the course of my fieldwork indicates that they were extremely desirable products imbued with the potential power to help athletes to regulate their training with more accuracy.

Till argues that 'in our present context, exercise and labour are in a process of merging in such a fashion that in a short space of time, the two may seem inseparable' (2014: 447). So what can we learn from studying wearable technologies in a context where exercise is not merely being transformed into labour but *is* labour in the very real sense that it is remunerated through salaries and prize money?

The existing literature on self-tracking devices (Lupton 2016; Neff & Nafus 2016) treats them primarily as *lifestyle* or leisure products. Meneley notes that devices like the Fitbit are tied up in a relationship between the self and the body that is comparable to that of master and pet, and asks the pertinent question, 'Who gets to treat the body as a pet?' (2019: 139). For Ethiopian runners, these are better categorized as *livelihood*

devices, relied upon as tools to monitor performance and energy expenditure and protect careers. The stakes attached to the use of such devices are therefore far higher. When the literature on tracking does discuss the relational effects of such devices, it does so almost entirely through the discussion of how the data collected circulate on social media. When ethical issues are considered, these usually relate to the ownership and sharing of self-surveillance data by the corporations that produce DSTDs (Lupton 2016; Neff & Nafus 2016; Ruckenstein & Schüll 2017). In Ethiopia, however, the data collected are rarely uploaded. In a context where people really do need to go faster than their peers in order to 'change their lives', access to the information generated becomes an ethical issue in a more direct sense, influencing the ways in which people think about how they co-operate with others and decisions about how to run and with whom.

To see these devices purely in terms of a dyadic relationship between self and device is inadequate in the Ethiopian context. The Ethiopianist literature (Boylston 2012; 2018; Levine 1965; Malara & Boylston 2016; Messay 1999) identifies a clear tension between hierarchy and commensality. Individualistic drives and steep asymmetries are understood to sit alongside relational economies of care and co-operation in Ethiopian moral worlds. Whilst Ethiopian Orthodox Christians understand people to be basically individualistic, this is not considered to be a good thing. As Boylston writes, '[I]ndividualistic urges must be tempered at all times by social and moral constraints, principal among which are ethics of visiting and commensality' (2012: 207). For runners, these concerns were reflected in the importance of taking in food (energy) together (as Boylston also notes) but also in the importance of expending energy in a way that was synchronous and visible by training together. Training as part of a group was understood to require intense intersubjective moral labour, and to suffer on the part of the self was also to suffer on behalf of others (Crawley 2018). This intersubjective moral work on behalf of the group was understood to be challenging, as it masked the underlying reality that in order to be selected for a race abroad it was necessary to gain an advantage over your training partners.

The introduction of GPS watches, and the privileged information these were seen to provide, would seem to afford one way of doing this. Rather than acting as 'self-tracking' devices, however, the watches crystallize tensions between individual desire, on the one hand, and its resistance, on the other. DSTDs are primarily used collectively, they circulate between people, and, crucially, they are used selectively (as our opening example shows) and critically. Runners used the data from these devices but they also relied upon energetic subjectivities cultivated in relation to others. In contrast to the marketing discourse which surrounds them, which is about exponential acceleration, they are as often used to go slowly and to protect scarce energetic resources as they are to go fast. We need to move beyond dyadic interpretations of such devices to consider how they are embedded in wider social relationships of collective work, submission, and authority.

For Ethiopian runners the production of achievement draws creatively on technologies of time management but also contests them. Runners recognize the need to become subject to time governance to realize potential and monitor improvement. At the same time, however, such 'scientific' attempts to master time also meet with resistance. Such attempts are not rejected; rather, runners seek to achieve a synthesis between external scientific knowledge and time discipline and pre-existing ideas about energy, risk, and collective work. As illustrated by the opening example, in which the time discipline of the GPS device was rejected on Entoto, the science of running is

something to which Ethiopian runners absolutely contribute, both in their words and in and through bodily practices of rest, slowness, and running differently. In running the way he did on Entoto, Bogale makes clear the belief that if places are different, so should training be, and so, too, should the attitude the runner adopts towards time.

Controlling the pace and social value

> Living together is a criteria [*sic*] to increase performance. When you run alone, you cannot measure your performance. When you run together, you can measure your performance with your friend.
> Coach Desaleyn of the Amhara Water Works Construction Enterprise Athletics Club, Gondar

As the above quotation suggests, 'measuring' performance is a social issue. Here coach Desaleyn was speaking at the training camp of the Amhara Water Works Construction Enterprise Athletics Club in Gondar about the importance of living and training together. Rather than focusing on the measurement of individual bodies according to time, he quite rightly points out that for the majority of runners performance is a relational issue. This is also a main concern of athletes who are forced to train alone due to the COVID-19 outbreak. Even for a top professional runner I spoke to who has a GPS watch, 'Training alone means that you do not know your shape and you are unable to evaluate your fitness'. The following extract is from a conversation between two runners who haven't yet reached the club level where runners are paid a salary. This conversation was recorded whilst Dejene was massaging Tilahun, who was lying on an Ethiopian Airlines blanket on the floor. Tilahun had just finished explaining his decision to move to Hannah Mariam, a ninety-minute journey away by public transport, because rent is slightly cheaper there.

> *Dejene: Is it good for training?*
> *Tilahun*: It is hot there.
> *Dejene*: In a hot place, your body will say 'go, go', so you have to control yourself.
> *Tilahun*: Kenenisa [Bekele, world record holder at 5,000 metres and 10,000 metres] used to train there before. The famous athletes can train anywhere because they have their own cars.
> *Dejene*: It is important to learn from others what you don't have.

The first thing I want to draw attention to here is the importance of the training environment. Before they mention the ability to 'control' the pace, Dejene warns Tilahun that he will have to resist the call of his legs to 'go' because he lives somewhere 'hot' (and therefore also lower altitude). The second is the social dimension of learning about pace. When Dejene says, 'It is important to learn from others what you don't have', he echoes a sentiment I heard hundreds of times: that to be successful, you had to learn to 'adapt' to other people's running styles and to 'follow their feet', to literally run in step with one another in order to stay close together and conserve as much energy as possible collectively.

The ability to run without emotion, to 'control' your energy expenditure and progress gradually, was highly valued but rare. It was also a skill that was easier to master the further up the running hierarchy you went, because this meant that you could train in a big group and therefore 'share the pace' and because you could drive to a variety of training environments in order to protect your energy levels. Athletes like Tilahun and Dejene, unattached to a club and uncoached, followed a far more irregular and haphazard training strategy than the athletes coached by Meseret. Often their training merely consisted of going to the forest and trying to keep up with other athletes until they could no longer do so.

In this context, it is clear to see why self-tracking devices would be appealing: they purport to offer clear information about the body that can allow runners to steadily improve and avoid 'burning up' their energy. The quote below, from coach Meseret at one of the 'life skills' classes he offered athletes in September 2016, actually echoes the discourse of the 'quantified self' movement quite closely (Wolf 2009).

> You let energy escape if everything does not go to plan and is not controlled. Controlling emotion is the first principle. The special principle of life: know yourself. Know yourself. It is very easy to say but very difficult to apply. Know yourself.

Whilst the 'life skills' class Meseret held was concerned mainly with measuring performance, planning, and incremental improvement, the athletes often responded to his questions by drawing attention back to the group. When he exhorted the runners to 'know yourself', Teklemariam replied by saying, 'We need to believe in ourselves, not merely wish for something or discourage ourselves, but we need to do what we can'. By switching to the plural, he draws attention once again to the group – rather than the individual – as a vehicle for progress.

A voracious reader of American self-help books translated into Amharic, Meseret ran several of these 'life skills' classes with the athletes. The following quote is from the same session.

> If you say running is my profession, I want you to understand something. Running is measured by time, but some of you do not know the value of time (*sa'at waga*). If you do not know the benefit of one second, you cannot be an athlete. If your legs are running without your mind, to be honest with you, Ethiopia has more than 5,000 athletes. They start as a flock of birds but they all melt away. When they start, they are a lot, but a few of them become successful; you can count them on your fingers. Unless you want to be one of those who fail, you need to use your watch and watch with your eyes and think with your mind to lead your legs. If you do not manage your legs, it becomes pure emotion. That is why Aseffa bore the burden [of pace-making] yesterday. You need to give value to every second.

Here, the 'value of time' that Meseret speaks about is not to be found in speeding up and breaking records, but rather primarily in terms of slowing down and avoiding 'finishing' your energy. When Meseret mentions Aseffa 'bearing the burden' of pace-making, this is because he is seen as having the ability to remain calm and controlled; often the group will be told to run at exactly 3.42 per kilometre, and as Meseret says in the transcript above, if they are out by more than a couple of seconds, this is seen as hugely detrimental to their training. In his 'flock of birds' metaphor, Meseret also invokes a tension between freedom (to fly like a bird) and the discipline of counting every second. Here Aseffa's work of self-control was performed on behalf of the group, and was highly respected by the other athletes, who saw this as protecting their energy levels and 'condition'.

The introduction of GPS devices had a clear impact on the social value of being able to 'control the pace', as this became less about individual judgement and temperament and more about who was in possession of the watch. Rather than alleviating worries about 'mundane yet vital choices' (Schüll 2016*a*: 201) about training, eating, and sleeping, the watch could actually create greater anxiety. As I have written elsewhere (Crawley 2017), acquiring a watch that told them how many calories they had burnt could lead to anxiety if an athlete had no way of accurately measuring the calories in the food they consumed. It could actually exacerbate the fear of not being able to 'replace' what they had lost.

Often GPS watches were relied upon to ensure that we ran as slowly as possible as opposed to for checking our speed, which would become something of a game. We

would see how slowly we could complete afternoon runs, the purpose of which was merely to 'massage' our aching legs. Acquiring a watch also often encouraged people to travel more often to places like Sendafa, where there was flatter and more open terrain on which to run, because there 'the kilometres came more easily'; people realized they were running four minutes per kilometre rather than five with the same effort. The detached quantification provided by the watch actually transformed the practice of training in these instances.

Lupton has suggested that such technology be seen in terms of the 'body-machine' metaphor, whereby the body is quantified in terms of 'inputs' and 'outputs' (2016: 29). As the above suggests, however, the ability to quantify energy in terms of calories does not always lead to a sense of control. Stackpool *et al*. note, regarding a study on wearable technology, that 'errors in measuring EE [energy expenditure] were, in general, unacceptably large and became larger with non-standard ambulation' (quoted in Hoy 2016: 97). An international marathon runner training at altitude in hilly, forest terrain is clearly not engaging in 'standard ambulation', yet the data provided by the watch led runners to change their eating and training habits in numerous ways.

As Lupton notes, DSTDs use 'complex algorithms to process and display the data collected', thus extending 'the move from the haptic to the optic in the configuring of the body/self. As one's bodily states and functions become ever more recordable and visualized via data displays, it becomes easier to trust the "numbers" over physical sensations' (2016: 399). Whether or not to trust 'the numbers' – especially those created in the forest, where the watch would frequently lose signal in the trees – was something the runners I knew discussed at length. Whilst your numbers in races – as Jeroen, quoted earlier, points out – determine 'what you're worth' to a sponsor or race organizer, the numbers produced and relied upon by training devices can often be wildly inaccurate.

Tracking selves or tracking relationships?

The tension between the idea of the group as a vehicle for progress and the valorizing of the individual is a major concern for many runners and people involved with the sport in Ethiopia (Crawley 2018). The concerns Ethiopian runners have about the erosion of the communal approach to training and the sharing of food and expertise is often spoken of as a problem of modernity. In her book on 'the quantified self', Lupton turns to a trio of sociologists – Giddens, Beck, and Bauman – to argue that 'self-reflexivity – seeking information and making choices about one's life in a context in which traditional patterns and frameworks that once structured the life course have largely dissolved – is part of contemporary practices of selfhood' (2016: 101). She goes on to write about the expanded 'array of options' now available to people, which render lives 'much more open, but also much more subject to threats and uncertainties', adding that when people 'take on the ethical project of selfhood', they are forced to make themselves central to, and responsible for, their own lives (2016: 102). The Ethiopian context, however, was one in which many athletes actively sought the authoritarian guidance of the coach, resisting his attempts to make them responsible for their performances and instead requesting that he accept responsibility.

Whilst most writing on wearable technology focuses on ideas about *self*-cultivation and *self*-discipline, in the Ethiopian context, GPS technology was implicated in wider relations of submission and dominance and collective ownership of tracking devices. Schüll quotes a representative of Verizon, who claims that the visual data produced

by self-tracking devices 'is really who you are' (2016*a*: 202), an echo of the Nike scientist quoted above in relation to the Breaking2 project. Viseu and Suchman refer to Foucault's conception of the body-object articulation as one of a 'meticulous meshing' defined by discipline (2010: 176). All of these writers implicate tracking devices within the Foucauldian ethical project of 'technologies of the self': that is, ways in which people perform 'operations on their own bodies and souls, thoughts, conduct and ways of being, so as to transform themselves' (quoted in Schüll 2016*a*: 195). The direct relationship between 'assemblages of wire, chips and batteries' (Schüll 2016*a*: 195) and the one body described by Schüll does not fit with the Ethiopian context, however.

For Ethiopian runners, belief, as discussed above, is cultivated through social relationships and various different orientations towards time, and GPS devices are implicated in these relationships in myriad ways. Watches circulate between runners, are frequently borrowed for particular training sessions, and are used collectively during group training. They are deliberately left behind for particular types of training, or deliberately ignored, as in the example at the beginning of this piece. They had vibrant social lives and careers, and analysing their trajectories can help us, as Appadurai puts it, to 'interpret the human transactions and calculations that enliven things' (1988: 5).

Whilst a couple of the wealthier athletes in the group owned Garmin watches, most of the runners relied on the watch our coach was given by the manager. This was given to a different athlete each session, depending on whom the coach especially wanted to monitor, or to the male pace-maker of the female athletes. In Ethiopia, a shared device more often represented responsibility to the group than the 'prosthetics of selfhood' (Lupton 2016), as the above examples demonstrate. After one training session in which the male pace-maker (who did not have a GPS watch) of the female group failed to run at the right pace, the athletes complained to the coach. His response was to defend the pace-maker and say, 'It is not only your problem. If we tie something to your hand, it will be easier for you'. As I have described, a strong discourse of individual responsibility and duty to the group surrounds pace-making; the GPS watch is presented as a way of facilitating this responsibility. Rather than the autonomous individual seeking 'control over their destiny' (Lupton 2016: 77) in a context of uncertainty and risk, the device offers a kind of *collective security* against the very real risk of over-training and athletic 'burnout'.

The watch that was owned collectively by the training group was often given to an especially promising athlete to wear when we went to Sebeta, a place renowned for being flat and fast, presenting them with an opportunity to prove their fitness. There would be no choice in this matter, and this presented an opportunity for the runner in question but also the added pressure of knowing that the data would be sent to the manager abroad for consideration. When Meseret says he will tie something to their hand, we are clearly not in the realm of *self*-discipline. Rather, the watch becomes part of larger relationships of domination and control.

Meseret made the following comment after a training session in which one of the runners 'disturbed the pace' by running too quickly.

> A person should be controlled by the watch they wear. If they don't have a watch, they should be controlled by somebody else's watch. If someone is asked to calm down, then out of respect for his friends and team mates he should leave or stop.

The watch, rather than a device for controlling the self and cultivating a sense of *individualized* responsibility, is here seen as capable of mediating relationships of trust

and respect between members of the group. Part of the desirability of such devices, however, was in their *potential* ability to free people from such relationships. This is how Hailye described his conversation with one of the runners who was irritated by other athletes 'pushing the pace'.

> He said, 'They don't want to lead, and they are trying to spoil my shape'. I said, 'You are tying up a smartwatch on your hand, so why do you have that watch? You can control yourself! There is the pace Meseret gave you. They can push if they like. Or they can go slow. Why don't you go by your own pace?' He didn't have any answer.

Whilst the watch might offer the opportunity to 'control yourself', it is clear from the fact that the runner 'didn't have any answer' to Hailye's argument that using the watch in this purely individualistic way, entailing separation from the larger group, was not really seen as an option. Here the watch offers an enticing possibility to gain an advantage over other members of the group, but one that, if seized upon, would be seen in very negative terms by other members of the training group. In order to avoid 'individualistic' and 'centrifugal' forces (Boylston 2012: 207), it was important that training was conducted synchronously and visibly, and that runners were not seen to be trying to gain an advantage by running alone. This communitarian logic, and the building of sociality between bodies, has been described as a religious practice in Ethiopia (Boylston 2018; Malara 2018), but it extended very clearly into the sociality of running.

The ability of the watch to operate as a *self*-tracking device was thus a potential disruption to the group dynamic that was never actually practised during group training, where runners still valorized running in a group and 'sharing' pace-making responsibilities. The sharing of watches, and their collective and collaborative use, suggests that they might best be conceptualized not as 'technologies of the self' but rather as 'technologies of the others' (Malara 2018: 21), entailing not merely work-of-the-self-on-the-self but rather the making and remaking of social ties.

Energy, fatigue, and 'knowing' time

> Science does not work for Ethiopians. A doctor does not know time, a doctor does not run. If mind and legs are not one, it is impossible to run.
>
> Rata, Ethiopian marathon runner

The careful monitoring of fatigue (*dekam*) was seen as a vitally important skill for a long-distance runner in Ethiopia. This concern expressed itself, for instance, in the prohibition against doing a second daily training run (as is usual) if a runner has been unable to sleep during the day for one reason or another. Fatigue was interpreted in a similar way to the European scientists of work referred to in my discussion of the Breaking2 project, for whom it was a pathology of productive, routinized labour but also a 'defence which protects us against the dangers of a work pursued to the extreme' (quoted in Rabinbach 1992: 141). As Rabinbach puts it, fatigue was 'on the one side a defense, marking the limits of the body's ability to convert energy into work, a limit beyond which the human motor could not function', and on the other, 'the body's method of economizing its energy, acting as a regulator of the body's expenditure of energy' (1992: 141). Scientists of work like Marey and Mosso 'agreed that biological time and body rhythms seemed to regulate naturally the pace of work and reduce waste in human labour' (Rabinbach 1992: 172).

Dobler has called for anthropologists to 'take rhythm seriously as an empirical category' (2016: 880), and focuses on a rehabilitation of Bucher's work. For Bucher,

it was not necessarily the uniformity of work that caused monotony and fatigue but its externally imposed, unrhythmic character. The ability to determine the pace of work was seen as vital, as Dobler puts it, because it 'allows us partly to forget the extraneous and alienated character of our work. It gives aesthetic meaning to the working process, diverts workers' attention from necessity, and lets them experience work's performative aspects instead' (2016: 865). Various different rhythms animated the training of the Ethiopian runners I knew, from 'following each other's feet', the practice of deliberately running in step whilst doing speed training on asphalt, to the relaxed rhythm of winding in and out of the trees in the forest. For runners, rhythm was not merely a distraction, as described by Dobler, however. Runners had a far more reflexive relationship to rhythm, which was constantly monitored, pondered, regulated, and discussed. The ability to balance the load (*c'ana*) of hard training with easier running was a vital skill for an Ethiopian athlete to learn, calibrating a rhythm of easy and hard days that would allow them to remain on the delicate tightrope of physical 'condition' required of top-level marathon runners.

In his attempt to create this balance, coach Meseret was constantly trying to calibrate this 'load' as precisely as possible. Using the GPS watch was part of this, but such devices were drawn upon creatively by Ethiopian runners and seen as appropriate in some contexts but not others. To return to the example at the very beginning of this article, here the watch was implicated in a traditional relationship of authority between the coach and the athletes, and was rejected as being inappropriate for numerous reasons. First, Entoto is imbued with a particular power because of the number of churches within the forest, and is therefore a place for a particular kind of running. Second, rainy season was seen as an environmentally dictated opportunity to rest by many athletes, who took the opportunity to reduce their training to once per day and lessen the intensity. Perhaps most importantly, as Bogale points out, forest training is about 'going up and down', and using the camber of the mountain intuitively to reduce the stress on the joints and lessen the chance of injury. It is seen as a particular form of training that is not suitable for the kind of external time discipline imposed by the coach.

Conclusion

Devices for measuring runners' bodies are implicated in wider relationships of sharing, control, and submission than the current literature on *self*-tracking acknowledges. I have described how two of the main corporations involved in the sport in Ethiopia characterize 'development' as acceleration, and the ways in which discourses of acceleration as progress have concrete effects on runners' bodies. These representations of time may be a particularly dominant representation within a hierarchy of 'heterochronies' (Bear 2014), yet whilst Ethiopian runners recognize the need to become subject to time governance to bring about potential and monitor improvement, such 'scientific' attempts to master time also meet with resistance.

Whereas Nike seek to construct a 'productive body' (Guéry & Deleule, 2014) by excluding the social, social relationships and ideas about sharing and collective work continue to dominate Ethiopian runners' conceptions of time. Rather than adopting narratives about self-control and self-responsibilization, measuring technologies are often used both selectively in particular situations and environmental conditions and collectively in order to protect the integrity of the training group. They track relationships as much as they do selves. Runners seek to achieve a synthesis between

external scientific knowledge and pre-existing ideas about energy, risk, and collective work.

Whilst DSTDs offered a tantalizing opportunity to give in to individualistic urges, in fact the devices crystallized pre-existing tensions at the heart of Amhara society between centrifugal desire and duties of care to and reciprocity with others. We need not separate individualism from collectivism when considering how DSTDs are adopted, nor should we assume that it is 'neoliberal' or modern impulses that create self-oriented behaviour. Rather, the more significant point is that such devices always interact with pre-existing notions about the self, competition, and responsibility to others.

Devices like the GPS watch invite us to disentangle the complex chrono-politics that emerge out of the interplay between technology and society. Rather than presume in advance that the adoption of these technologies necessarily results in the uniform incorporation of subjects into new modes of governance, the ethnographic challenge is to unpick the ways in which technology produces or reshapes social and cultural practices. Whilst these may be the very grounds of power and domination, they can also signal the limits to domination. This article has demonstrated the importance of more ethnographic work on the collective use and social lives of such devices, and their adoption in the Global South in particular.

NOTE

I am particularly grateful to Jamie Cross and Neil Thin for their mentorship, as well as to the many people who have read and commented on my work over the last couple of years, including Niko Besnier, Tom Boylston, Alysa Ghose, Diego Malara, Roslyn Malcolm, Elliott Oakley, and Felix Stein. Above all I am grateful to the runners who shared their lives, and many hundreds of kilometres of forests and trails, with me. Two anonymous reviewers provided incisive and generous comments which greatly improved the manuscript. Support for my research comes from the Economic and Social Research Council (Award number C103496J and a postdoctoral fellowship).

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Auto-traçage ou traçage des relations ? Comment les coureurs éthiopiens mesurent le temps

Résumé

Les montres GPS et autres dispositifs connectés sont destinés à l'« automesure », ce qui suppose une relation dyadique entre individus et technologies. Les coureurs professionnels éthiopiens sont de plus en plus friands de ces technologies, qui existent pourtant dans le cadre de rapports plus profonds de travail collaboratif, de soumission et d'autorité. Elles circulent entre les personnes, suivant à la trace ces relations autant que les coureurs eux-mêmes. L'auteur place leur utilisation dans le contexte des propos et des pratiques de deux des principales firmes qui collaborent avec des coureurs en Éthiopie, afin de suggérer que la logique d'accélération exponentielle que suivent ces entreprises se heurte à l'hostilité des athlètes éthiopiens, qui recherchent une synthèse entre connaissances scientifiques externes et idées préexistantes sur l'énergie, le risque et le travail collectif. Si les dispositifs d'automesure peuvent faire naître la tentation de céder à des pulsions individualistes, ils cristallisent en réalité les tensions qui existent dans la société amhara entre désir centrifuge et devoirs de considération et de réciprocité.

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